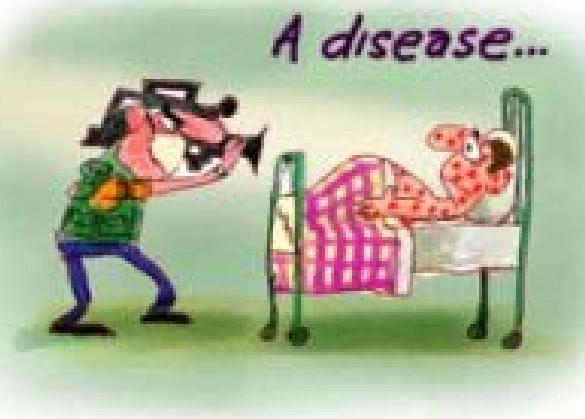


AMCA Meeting, Reno

March 2008

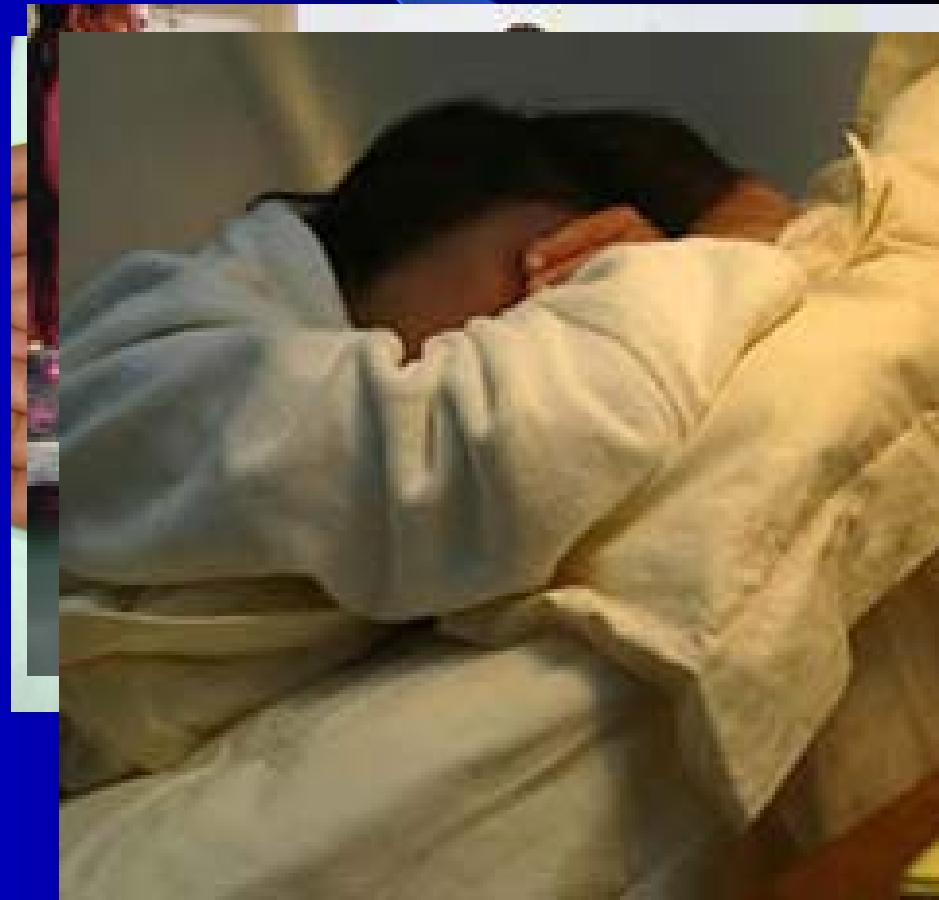


Potential Arboviral Introductions

- Chikungunya
- Dengue
- Rift Valley Fever
- Japanese Encephalitis
- Venezuelan Equine Encephalitis
- Bluetongue serotype 8

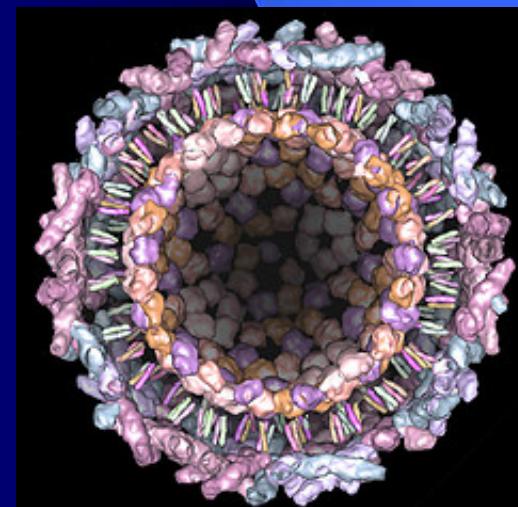
Chikungunya Virus

- Mosquito-borne (Aedes spp)
- Fever >104
- Light sensitive
- Joint Pain – severe
- Rash, N/V, headache
- Persistent disability
- Fatal 0.1-1%

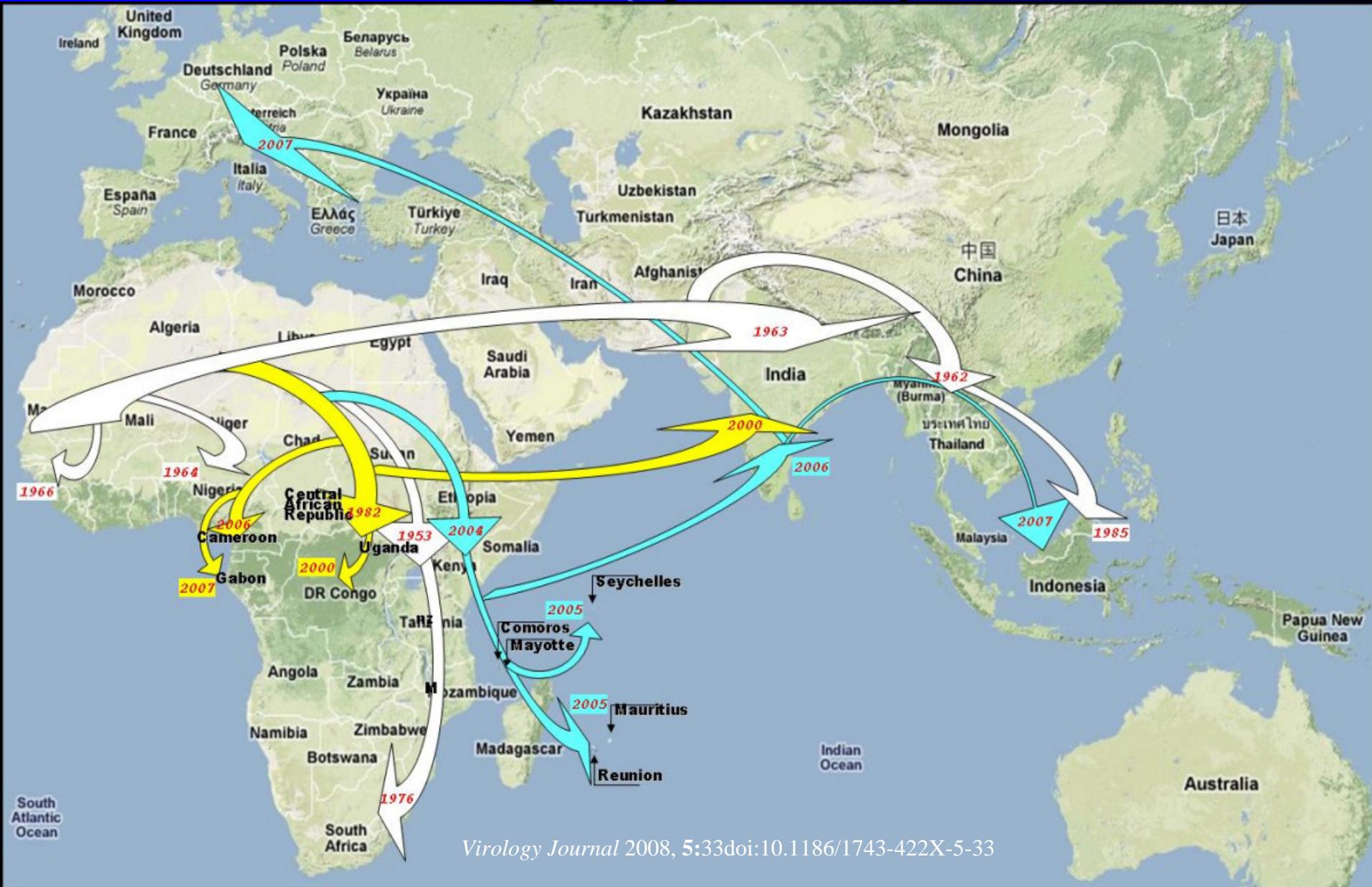


Chikungunya Virus 2006/07

- Indian Ocean epidemic
- 1.4m cases India alone in 2006
- Infection incidence >34%
- Outbreaks in Italy, 2007, n=292
- Mutation of CHIKV
- High viremia >9 logs
- Feb 2008, Singapore outbreak



Chikungunya Dispersal



Potential for Introduction

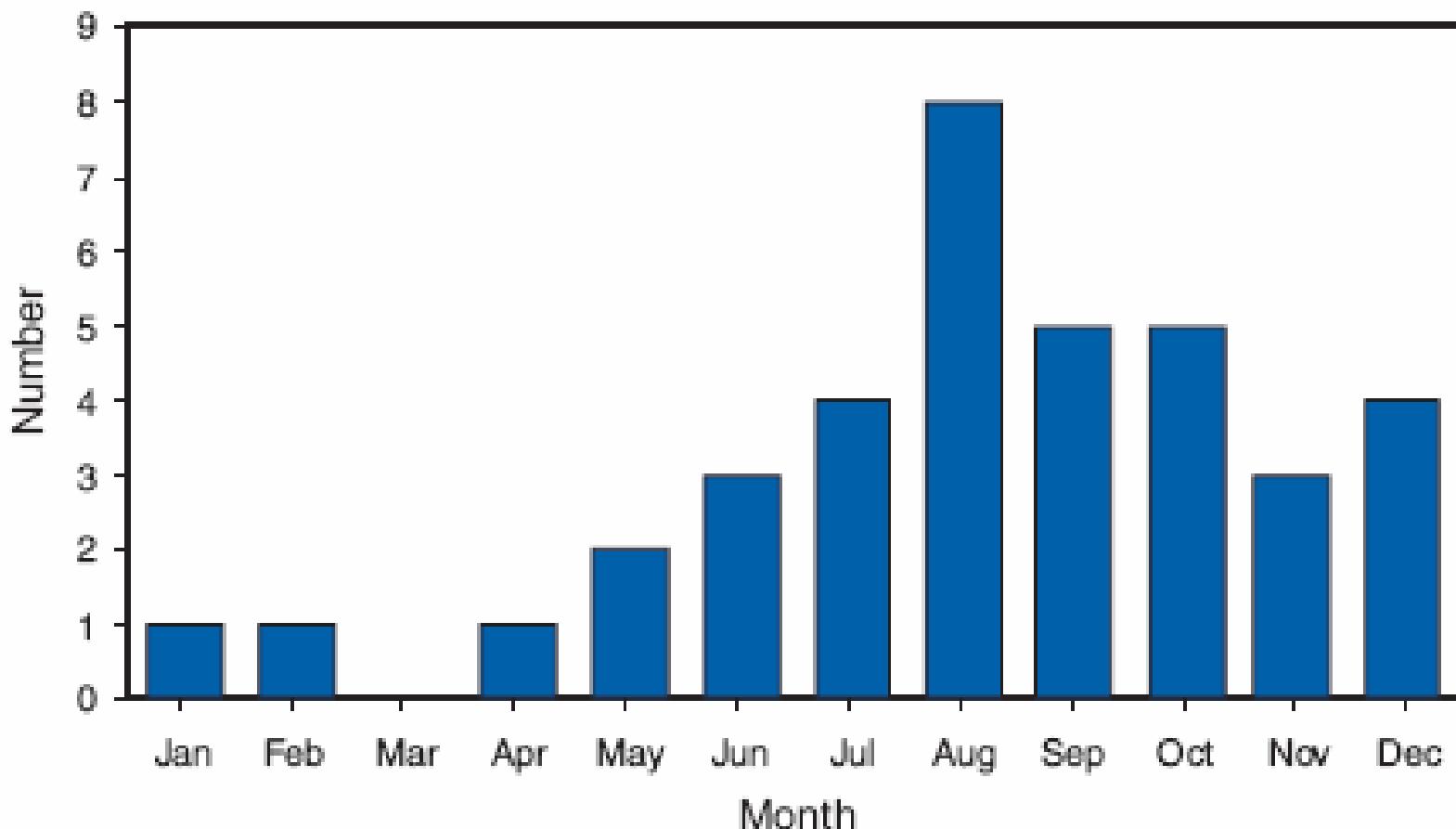
- Competent vector
- Susceptible host (exposure?)
- Introduced pathogen (travelers, immigrants)
- Promoting/Mitigating factors

Vector/Pathogen Introductions

Sufficient vector density to sustain?

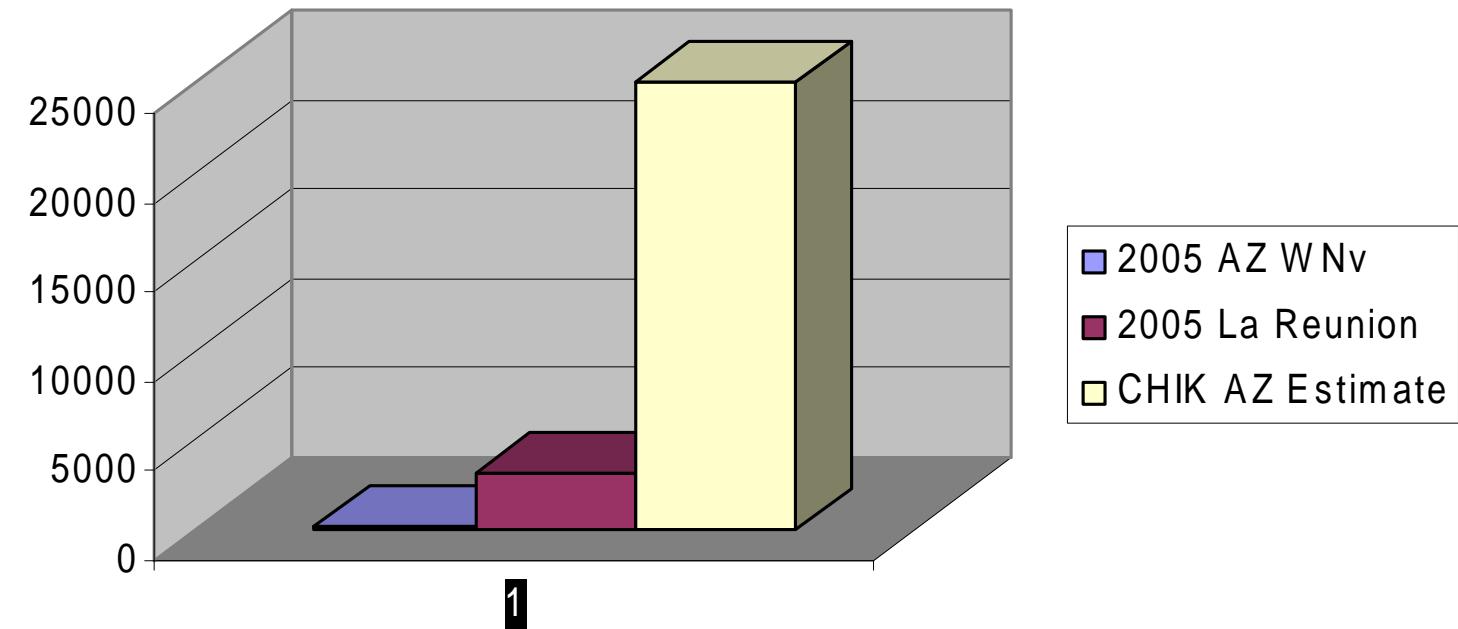
Imported CHIK Cases

FIGURE. Number (37) of confirmed cases of chikungunya fever, by month of illness onset — United States, 2006



Infection rate * Population

If CHIKv Came to AZ



Dengue World Distribution

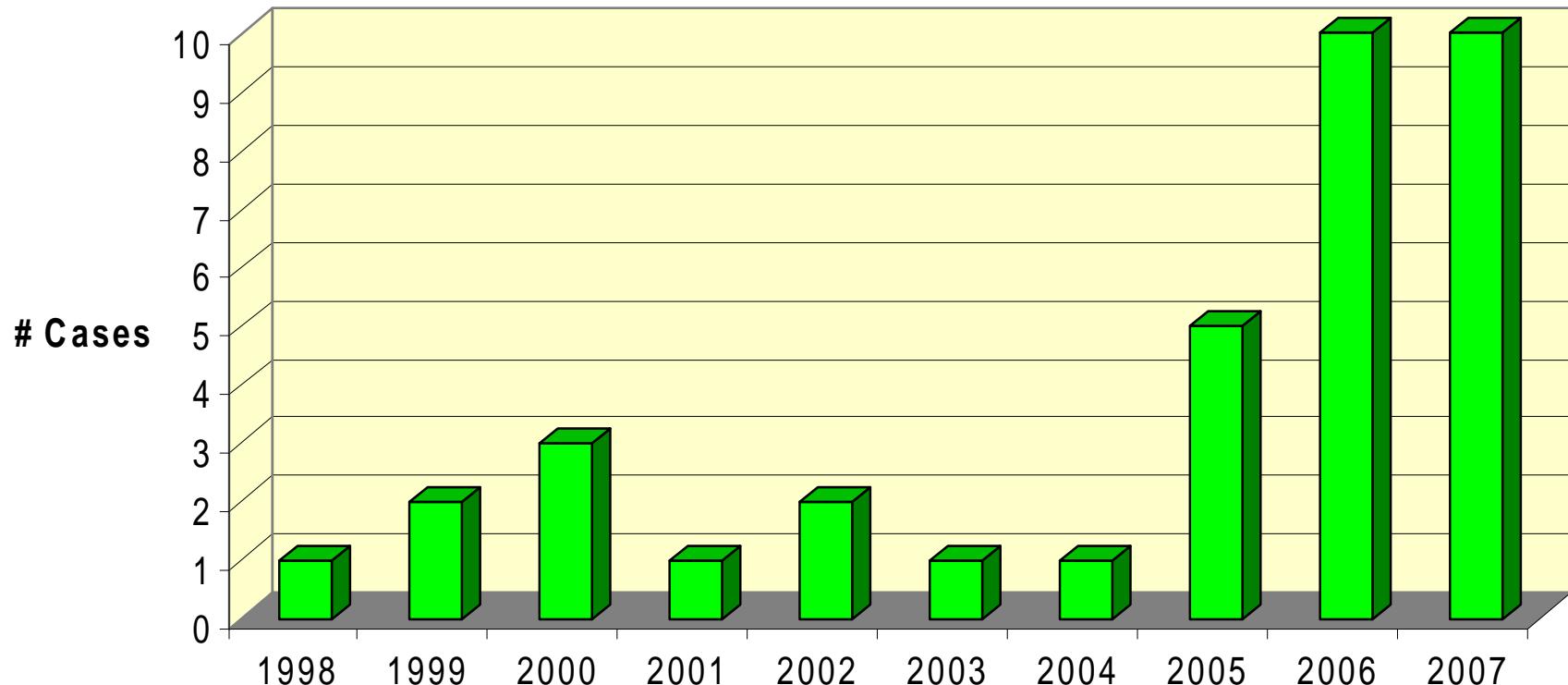


■ Areas infested with *Aedes aegypti*

■ Areas with *Aedes aegypti* and dengue epidemic activity

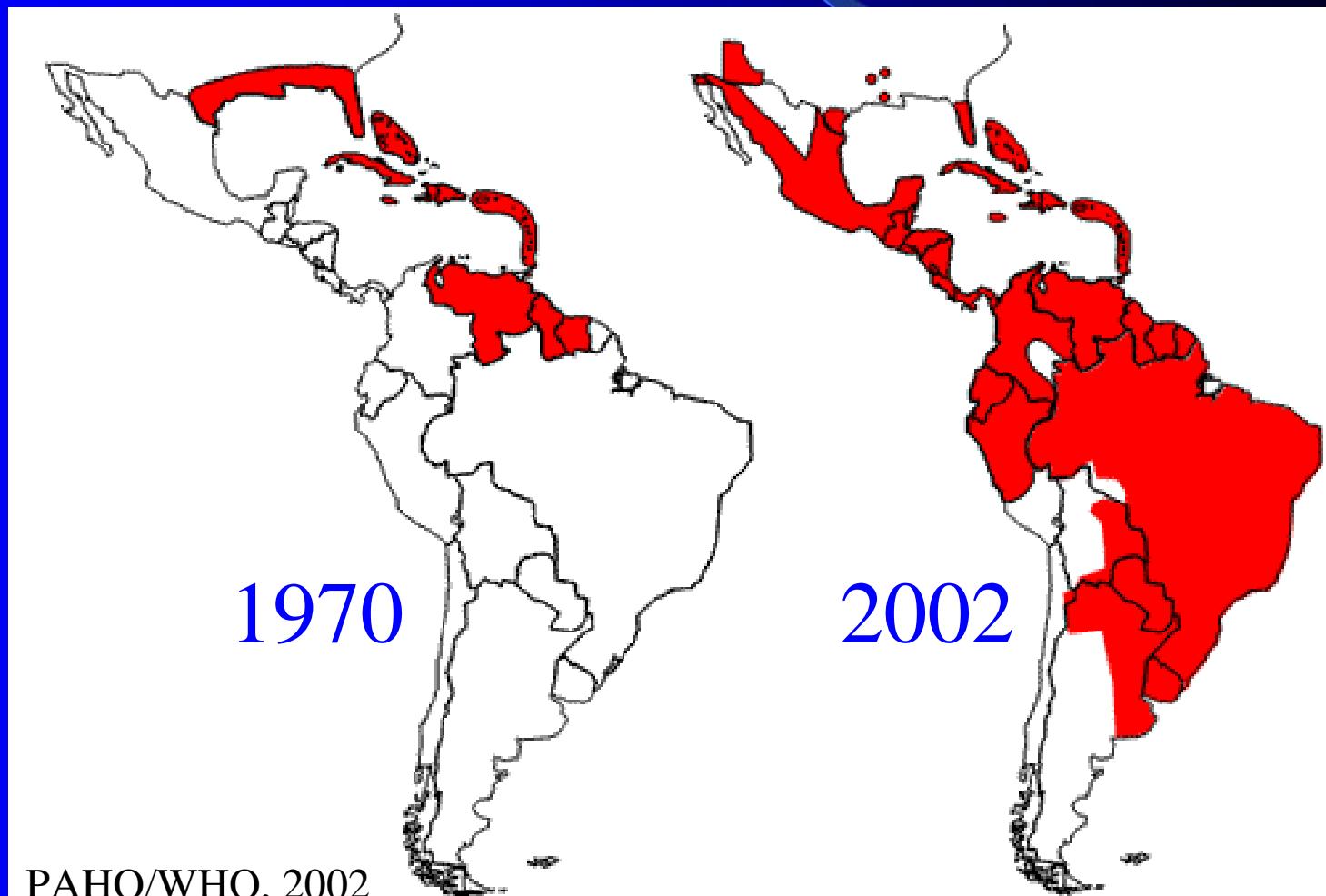
Imported Dengue, AZ

Imported Dengue Cases, AZ

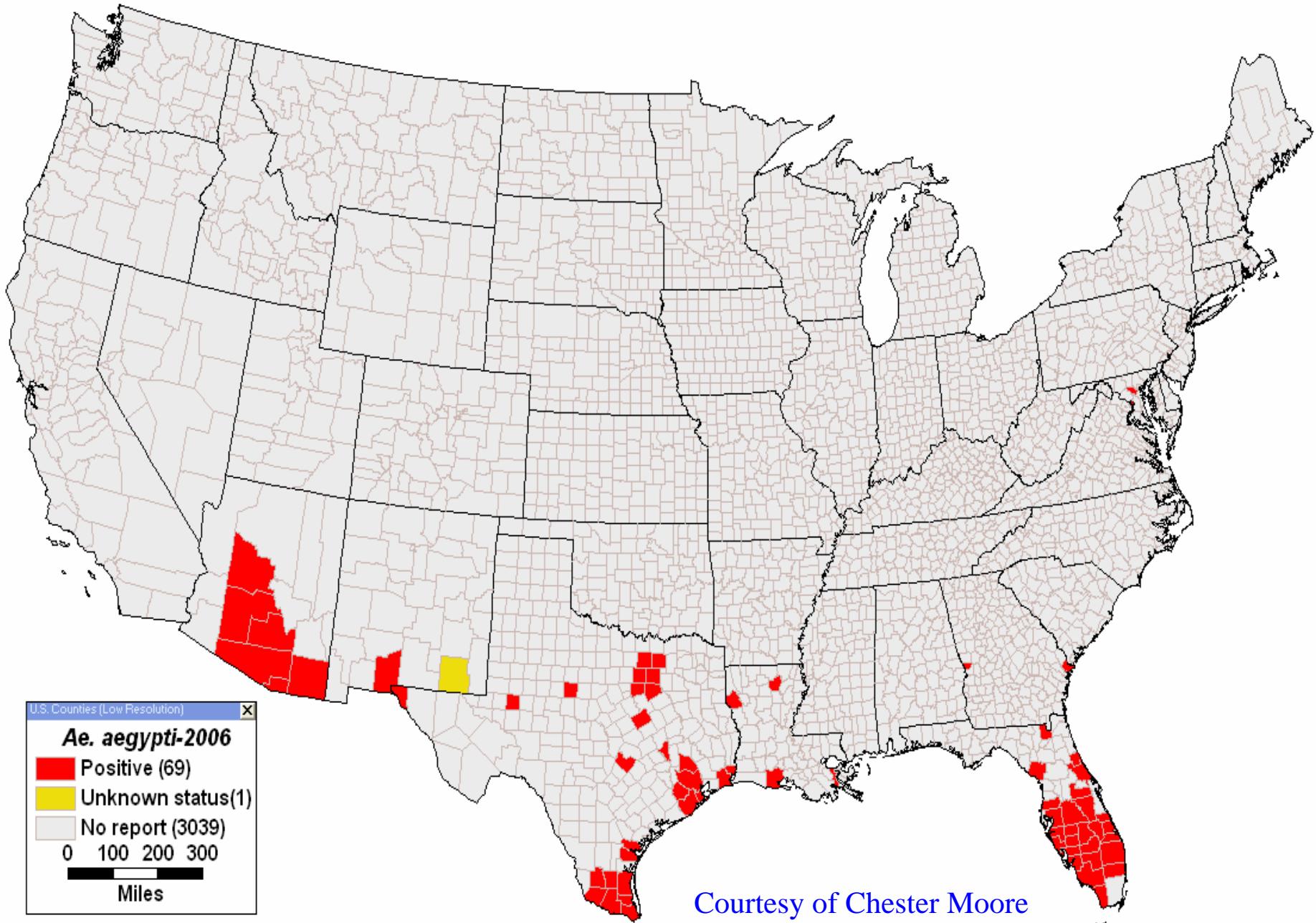


Courtesy of Craig Levy AZDHS

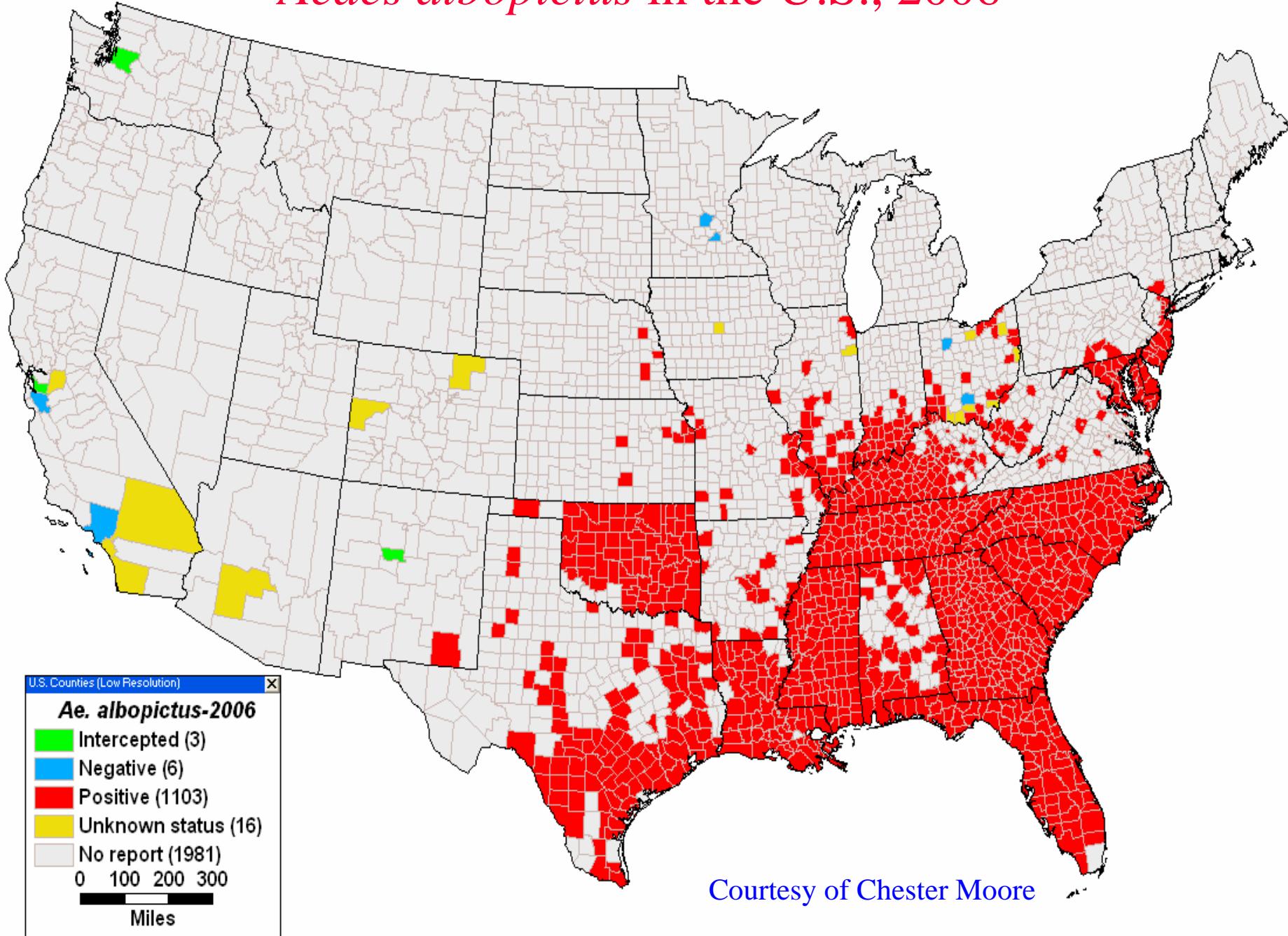
Aedes aegypti Distribution Map



Aedes aegypti in the U.S., 2006



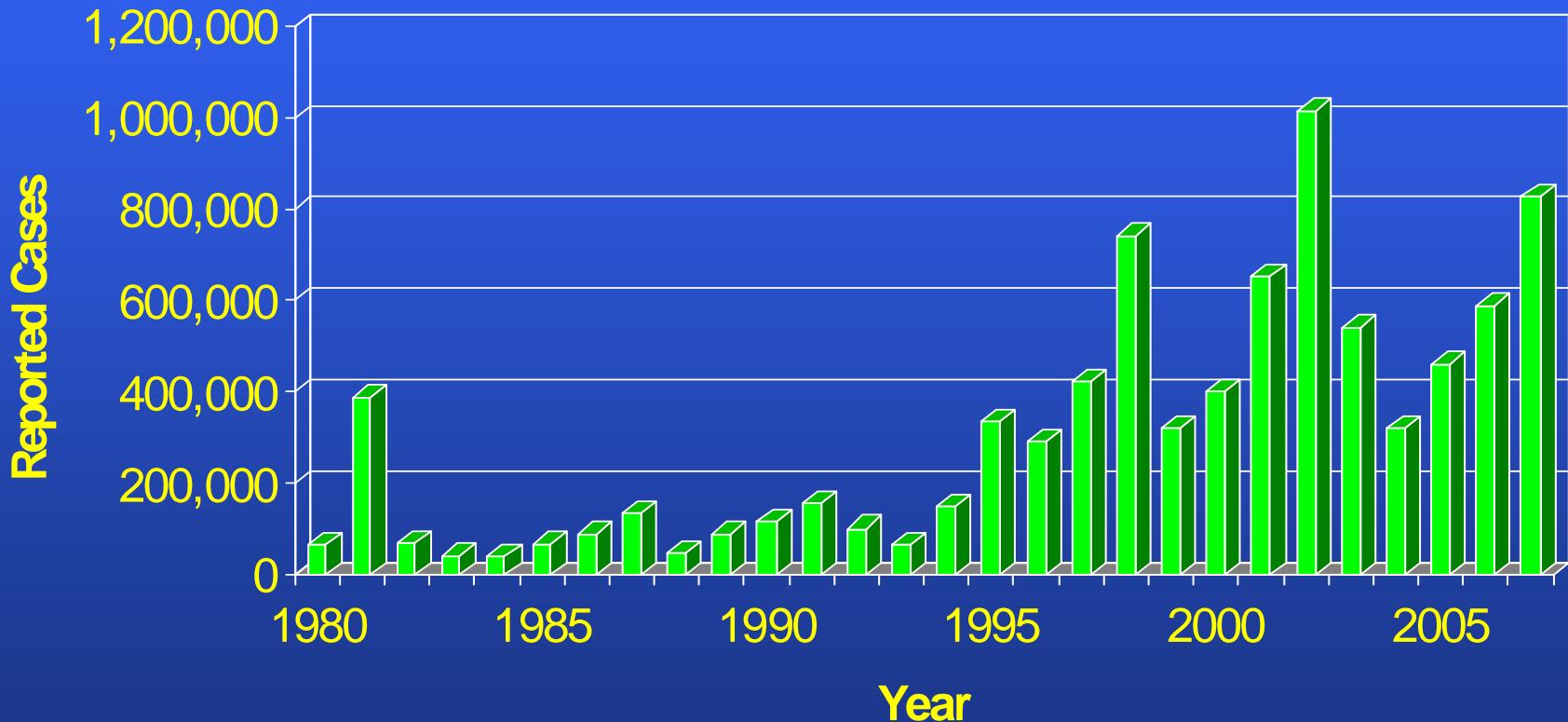
Aedes albopictus in the U.S., 2006



Dengue

- Competent vector
- Introduction of pathogen
- Trend in Mexico, CA, SA
- Hyperendemicity

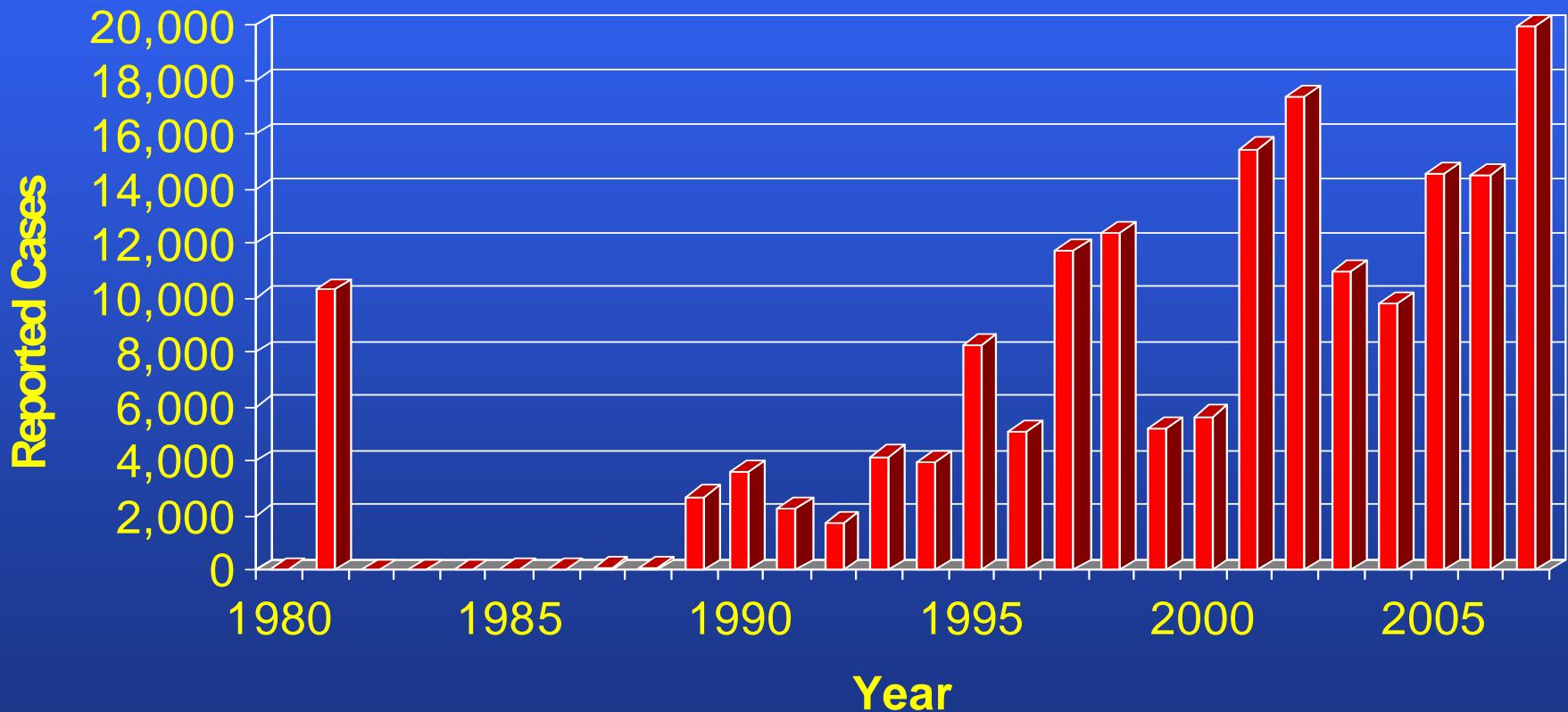
Dengue in the Americas 1980 – 2007 *



* Data: PAHO (Nov. 30, 2007)



Dengue Hemorrhagic Fever in the Americas 1980 – 2007 *



* Data: PAHO (Nov. 30, 2007)



Mitigating Factors

- Short viremia, 5-7 days
- Living/housing conditions
- Vector distribution variable/uneven
- Critical vector density for secondary transmission may not exist

Promoting Factors

- Proximity-Dengue is nearby
- Severity in nearby areas
- Travel/immigration from endemic areas
- Vector density & range, is it increasing?
- History: Dengue epidemics in US before